SANTA CRUZ BIOTECHNOLOGY, INC.

PRL-R siRNA (m): sc-40168

BACKGROUND

The anterior pituitary secretes a variety of hormones that are involved in cell growth, differentiation and development. Prolactin, a 226 amino acid protein, plays a role in multiple processes, including cell growth, reproduction and immune function. Full length prolactin, as well as an alternative splice product lacking the third exon, are secreted by endothelial cells involved in angiogenesis. In addition to its role in mammary development and lactation, prolactin is known to play a role in the development of mammary cancer, acting as both a mitogen and a differentiating agent. Prolactin has also been shown to enhance the proliferation of B cell hybridomas, leading to an overall increase in antibody production. Prolactin reverses the antiproliferative effects of the immunosuppressive cytokine TGFβ. Prolactin is also associated with a variety of autoimmune diseases, including arthritis and type 1 diabetes. The receptor for Prolactin (PRL-R) belongs to the cytokine receptor superfamily. PRL-R is activated by ligand-induced homodimerization and subsequent cell signaling through the JAK/Stat pathway. The gene encoding human PRL-R maps to chromosome 5p13.2.

REFERENCES

1. Arden, K.C., et al. 1990. The receptors for prolactin and growth hormone are localized in the same region of human chromosome 5. Cytogenet. Cell Genet. 53: 161-165.
2. Maaskant, R.A., et al. 1996. The human prolactin receptor in the fetal membranes, decidua, and placenta. J. Clin. Endocrinol. Metab. 81: 396-405.
3. Goffin, V., et al. 1997. The prolactin/growth hormone receptor family: structure/function relationships. J. Mammary Gland. Biol. Neoplasia 2: 7-17.
4. Goffin, V., et al. 1998. Prolactin: a hormone at the crossroads of neuroimmuno-endocrinology. Ann. N.Y. Acad. Sci. USA 840: 498-509.
5. Clapp, C., et al. 1998. Expression of prolactin mRNA and of prolactin-like proteins in endothelial cells: evidence for autocrine effects. J. Endocrinol. 158: 137-144.
6. Vonderhaar, B.K. 1998. Prolactin: the forgotten hormone of human breast cancer. Pharmacol. Ther. 79: 169-178.
7. Neidhart, M. 1998. Prolactin in autoimmune diseases. Proc. Soc. Exp. Biol. Med. 217: 408-419.

CHROMOSOMAL LOCATION

Genetic locus: Prlr (mouse) mapping to 15 A1.

PRODUCT

PRL-R siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PRL-R shRNA Plasmid (m): sc-40168-SH and PRL-R shRNA (m) Lentiviral Particles: sc-40168-V as alternate gene silencing products.

For independent verification of PRL-R (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-40168A, sc-40168B and sc-40168C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PRL-R siRNA (m) is recommended for the inhibition of PRL-R expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

PRL-R (B10): sc-74520 is recommended as a control antibody for monitoring of PRL-R gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PRL-R gene expression knockdown using RT-PCR Primer: PRL-R (m)-PR: sc-40168-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.